

# PELVIC TUBERCULOSIS MIMICKING PERITONITIS CARCINOMATOSIS AND DIAGNOSED BY LAPAROSCOPY

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Tuberculosis is still observed as an endemic disease in developing countries [1]. Because the disease progresses asymptotically, most of those affected are not diagnosed and the actual prevalence in Turkey is still not known.

In developing countries, genital tuberculosis is seen mostly in young women between 15 and 25 years of age. In developed countries, most genital tuberculosis is seen in postmenopausal women (62%) [2].

Disseminated peritoneal tuberculosis accounts for 1–3% of tuberculosis cases [3]. Peritoneal tuberculosis has symptoms in common with advanced stage ovarian cancer. Pelvic pain and mass, ascites and increased CA 125 levels are well known markers of both ovarian cancer and peritoneal tuberculosis.

A correct preoperative diagnosis of female peritoneal tuberculosis is not common, but there are several diagnostic approaches. Laparoscopy seems to be an efficient and safe method to provide tissue samples for histologic diagnosis of peritoneal tuberculosis. The value of laparoscopy in diagnosis of peritoneal tuberculosis is well described in different reports [4,5]. In this article, a case of genital tuberculosis complicated by disseminated ascites and peritonitis carcinomatosis mimicking ovarian cancer is reported.

A 32-year-old female was admitted to our clinic with left pelvic pain. Her blood pressure was 110/70 mmHg and heart rate 84 beats per minute, and there was no fever. Pelvic examination showed pain on lifting the cervix. Pelvic ultrasonography and computed tomography (CT) revealed free fluid in the Douglas pouch, a left adnexal cystic lesion measuring 4×4 cm, and an intrauterine device located in the uterine cavity (Figure 1). The white blood cell count was 12,000/μL, erythrocyte sedimentation rate (ESR) 75 mm/hr and

C-reactive protein 68.4 mg/L, and tumor markers (CA 125, α-fetoprotein, carcinogenic embryonic antigen) were found to be within normal ranges. Broad spectrum antibiotics were given initially. However, this therapy failed to improve the symptoms. After discussion with the patient, laparoscopy was preferred initially because it was less invasive. During the laparoscopy examination, purulent fluid within the abdominal cavity and a smooth contoured left ovarian cyst was noted. Thus, left ovarian cystectomy was performed. The result of aspiration cytology was reported as negative for malignancy, and the bacterial culture was negative. The pathology of the cyst indicated a simple serous cyst. A wide spectrum intravenous antibiotic was initiated and the intrauterine device was removed. The patient was discharged 5 days later and attended for routine follow-up.

Five months later, she was readmitted to our clinic with pelvic pain and abdominal distension. Pelvic sonography revealed diffuse pelvic ascites (Figure 2) and a simple cystic lesion measuring up to 3×4 cm in the right adnexal area. The pelvic CT scan showed diffuse fluid within the abdomen, nodules on the peritonea, peritonitis carcinomatosis, and a simple cystic lesion on the right adnexa (Figure 3). The laboratory measurements were as follows: white blood cell count, 18,000/μL; ESR, 115 mm/hr; C-reactive protein, 46 mg/L; and CA 125, 75 IU/mL. A second laparoscopy was planned for



**Figure 1.** The computed tomography image of the patient prior to first laparoscopy.

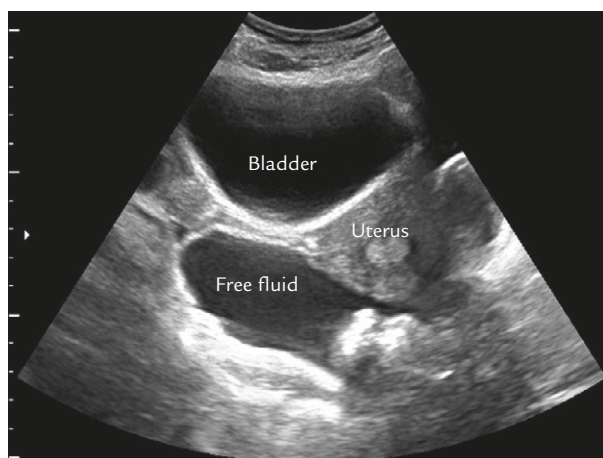


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**Figure 2.** The ultrasonographic image revealed diffuse ascites just before the secondary laparoscopic examination.



**Figure 3.** The computed tomography image revealed diffuse ascites and peritoneal nodules (arrows) just before the secondary laparoscopic examination.

biopsy. At laparoscopic exploration, there were diffuse peritoneal ascites and a peritonitis carcinomatosis-like appearance. The uterus, tubes and ovaries could not be clearly identified. Biopsies were taken from peritoneal nodules, and frozen sections were examined. The pathology was concordant with tuberculosis granuloma. A thorax CT was performed with normal findings and a purified protein derivative (tuberculin) test (tuberculosis skin test) was negative. Medical treatment for tuberculosis with isoniazid, rifampicin, ethambutol hydrochloride and pyrazinamide for 2 months was planned and initiated; the patient was then discharged and was followed up with monthly medical checks. Following a long 6-month period of medical treatment with isoniazid and rifampicin, the patient's symptoms resolved and pelvic examination revealed a normal result. The subsequent CT revealed resolution of the ascites and pelvic cystic lesion. Laboratory measurements, which included white blood cell count, erythrocyte sedimentation rate, C-reactive protein and CA 125, indicated normal levels.

Genital tuberculosis, described for the first time by Morgagni in the 18<sup>th</sup> century [6], usually progresses asymptotically; thus, it tends to be diagnosed incidentally during infertility tests. It may manifest as menstrual irregularities, infertility, and/or chronic pelvic or lower abdominal pain, and is almost always acquired by hematogenous spread from a non-genital source such as pulmonary or abdominal tuberculosis [7–10]. Although direct transmission from a sexual partner has been reported previously, transmission from another intraperitoneal focus is rare [11]. The fallopian tubes are the first and most commonly affected genital organs, followed by the endometrium, ovary, and cervix [12]. Adhesions between tubes, ovaries, omentum, intestines, liver, and diaphragm (the Fitz-Hugh-Curtis syndrome) are common findings in tuberculosis.

Genital tuberculosis should be suspected in unknown infertility, pelvic infections resistant to antibiotic treatment, and adnexal diseases complicated with ascites in virgin patients. In our case, combined antibiotic therapy was started initially, but no improvement was detected.

In pelvic examination, a pelvic mass is detected in 50–65% of patients. The pelvic mass can be seen as a result of edematous tubes, pyosalpinx or tuba ovarian abscess formation. Nodularity can be detected on the Douglas pouch secondary to tubercle formation on serosal surfaces of the pelvic organs. Rarely, ascites and abdominal distension can be observed.

A correct preoperative diagnosis of female peritoneal tuberculosis is not common on the systematic examination of both clinical findings and laboratory tests. A high index of suspicion in this rare presentation is perhaps as important as any diagnostic or therapeutic procedure. A family or past history, physical examination, routine chest X-ray, pelvic sonography, and CT evaluations may not be specific enough in many of these patients. In our case, there was no family history or no previous tuberculosis history.

In most patients, leukocytosis is absent and ESR is found to be elevated. Serum CA 125 is of value in the differential diagnosis of benign and malignant adnexal masses, particularly in women presenting with ascites. Any woman who presents with a radiologically identifiable pelvic mass, ascites and increased serum CA 125 levels must be considered to have ovarian cancer until proven otherwise. Some patients who have peritoneal tuberculosis can be misdiagnosed for ovarian carcinoma because of ascites and high levels of serum CA 125. In our case, the serum CA 125 level was 75 IU/mL at diagnosis.

Paracentesis can be offered for diagnosis in cases complicated with ascites. The presence of a protein

concentration above 3 g/dL and lymphocytes in the smear test should suggest the possibility of tuberculous peritonitis. A tuberculosis skin test usually indicates immunization rather than acute infection, so is not useful in diagnosis.

Pelvic sonography can be helpful if there is a pelvic mass present. Hysterosalpingography can be useful in the diagnosis of genital tuberculosis in patients evaluated for infertility. In current technology, the polymerase chain reaction is highly useful in diagnosis. Exact diagnosis is completed by pathologic investigation, a direct smear test, or the detection of bacilli in culture [13]. Image-guided percutaneous peritoneal biopsy has been described for definitive diagnosis. In females, peritoneal tuberculosis usually presents with ascitic fluid which can easily be obtained for bacteriologic examination. The sensitivity of this method is about 80–95% [14].

After medical treatment of genital tuberculosis for 4 months, surgery may be indicated in cases with no resolution of the pelvic mass, in cases in which fever and leukocytosis remain high even after medical treatment, in cases resistant to medical treatment, and in cases with suspicion of malignancy. Surgery should be planned at least 6 months after medical treatment. Medical treatment may be useful in reducing the complications which can develop secondary to surgery [15].

Laparoscopy seems to be an efficient and safe method of obtaining tissue samples for histologic diagnosis of peritoneal tuberculosis. In our case, we also used laparoscopy and gained adequate tissue samples for pathologic investigation. A chronic granulomatous reaction and inflammation in histology are consistent with, but not diagnostic for, tuberculosis infection. Bacteriologic examination of a biopsy specimen obtained at surgery should be performed, as this may be positive for tuberculosis when the histologic examination is negative. The bacteriologic methods to confirm the diagnosis of peritoneal tuberculosis include: presence of acid-fast bacilli (Ziehl-Neelsen staining positive), positive culture for *Mycobacterium tuberculosis* and polymerase chain reaction positive for *M. tuberculosis* complex [16,17]

In this case, the diagnosis of genital tuberculosis was late as there was an absence of tuberculosis history, absence of typical tuberculosis symptoms such as weight loss, cough and fever at night, and the presentation of the case was similar to that of a pelvic abscess. It was also an interesting case, since it mimicked typical advanced stage disseminated ovarian cancer. In addition, we found that laboratory measurements and radiologic investigation can be deficient in the diagnosis of genital tuberculosis. Genital tuberculosis should always be kept in mind in cases of pelvic

infection that do not respond to broad-spectrum antibiotic treatment.

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